

CURRICULUM VITAE:



Dr Chikamai Lucy Walingo.
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Anything in Gods control is never out of control

1. Personal details

Surname	Chikamai
Other names	Lucy Walingo
Race and Gender	Black Female
Date of birth	12th July 1959
Place of birth	Kakamega District, Sawawa Village
Marital status	Married with three Children
Religion	Christian
Citizenship	Kenyan
E-mail:	luciechikamai@yahoo.com, lucychikamai@gmail.com,
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2. Current Status:

Employer	Kibabii University
Address	P.O Box 1699-50200, Bungoma, Kenya
Current Position	Dean, Faculty of Science
Grade	Senior Lecturer, Scale 13
Highest Ed. level	Ph.D. (Mathematics)
Year Graduation	April 2013
Ph.D. Advisors	Prof. B G Rodrigues and Prof. J. Moori
Thesis Title	Linear codes obtained from 2-modular representations of some finite simple groups
Research interests	Coding Theory, Finite groups, Modular Representation Theory and Combinatorics
Employer:	Kibabii University

A. *Current engagements*

- Coordination and management of Faculty affairs
- Lecturing and research in Mathematics.
- Charged with launching of the BSc Nursing program

B. *Some University Committees and memberships (past and present)*

- Member of the Senate
- Member Deans Committee
- Member Anticorruption Committee.
- Member Anticorruption Committee
- Member Curriculum and programmes review committee
- Member University Projects committee
- Chairperson first International Conferences Committee (2016)
- Chairperson- Gender and Mainstreaming committee
- Chairperson- Waste and Disposal Committee
- Member Physical development and project implementation committee

3. EDUCATIONAL AND PROFESSIONAL TRAINING QUALIFICATIONS:

Duration	Certificate	Institution/ Country	Grade/Dissertation Title
2008-2013	PhD	University of KwaZulu-Natal, South Africa	Binary codes obtained from finite simple groups
2002-2004	MSc	Kenyatta University, Kenya	Duality in the FK-spaces
2000	IMIS Diploma	Kenya College of Accountancy, Kenya	Diploma in Management of Information systems
1979-1983	B.Ed.(Sc.)	University of Nairobi, Kenya	Second class Honors -Upper division
1977-1978	EAACE	Tumutumu Girls High School, Kenya	3 Principals, 1 Subsidiary (Math, Phy, Chem, G.P)
1973-1976	EACE	Kaimosi Girls High School, Kenya	Division 2, 24 points
1966-1972	CPE	Bukhakunga Primary School,	24 points

4. Career profile:Employment, work history and experience

A. University Teaching

Nov 2014 to date	Kibabii University	Ag Dean (Faculty of Science)	Lecturer Gd. 13
Aug 2013-2014	Kibabii University	COD, Math and Science	Lecturer Gd. 12
2004-2013	MMUST	Lecturer	Ass. Lect, Gd 11
2009-2012	UKN(South Africa)	SI/ Tutor	Tutor

B. Teachers Service Commission (TSC) –College &High school Teaching

1994-2004	WECO College	HOD Maths and Computer Science	SL
1991-192	Hospital Hill H.Sch.	HOD Maths and Science	GT I
1988-1990	Moi Forces Academy, Nairobi	HOD Maths Department	GT I
1985-1987	Malava GHS.	HOD Maths and Science	GT II
1983-1984	Butere GHS	HOD Science Department	GT III

C. Experience A wealth of teaching experience spanning many levels of Education, right from high school through Technical College to University; undergraduate and postgraduate, boarding and day schools, single sex and mixed sex institutions since 1983

D.Research interest

Coding Theory, Finite groups, Modular Representation theory and Combinatorics.

Research Statement

It would be of the greatest interest if it were possible to give an overview of the entire collection of finite simple groups." So begins an article by Otto Holder in Mathematics Annalen in 1892.

Algebraic coding theory originated in communications as a result of an effort to control errors caused by distortion and interference in transmitted data and has since then expanded and established itself as a field of study. Though coding theory has its roots in communications, it is richly related to many areas of mathematics. Linear codes have been constructed from row spaces of incident matrices of combinatorial objects such as graphs, designs and finite geometries, among others, and their properties derive from the underlying structures. As such codes are closely linked with many mathematical objects and this lends a study of the interplay between the codes and the mathematical objects as important as the study

of the codes themselves.

In recent times much attention has been devoted to the characterization of finite simple groups using combinatorial structures as mentioned above. Simple groups constitute the building blocks from which every finite group can be constructed. Our research interest is focused to understanding the links and interplay between finite simple groups and algebraic coding theory. To this end we determine and study binary linear codes obtained from 2-modular primitive permutation representations of finite simple groups. Given a primitive representation of a group G on a finite set, defining a multiplication on the group ring $V = F_2G$ by elements of the group makes V an FG-module. The invariant submodules (i.e., the subspaces of F_2G taken into themselves by every group element) are all the p -ary codes for which G is a subgroup of the automorphism group of the code. We attempt to determine and examine all the binary invariant codes under the prescribed group. We thus have acquainted ourselves with depth on groups and their modular representations, codes as submodules, designs and graphs, particularly the strongly regular graphs.

This research is an enumeration and classification problem, which not only has a merit of its own but also lends itself naturally to revealing the interplay between coding theory, modular representation theory and combinatorial structures. Enumeration and classification problems, though revealing the structure of an object, are generally laborious and are fundamentally connected with algorithms and computations. We have thus developed a series of computer programmes in Magma to search for irreducible modules invariant under finite simple groups. The recursive searches are coupled with the use of Meataxe which helps determine the irreducibility of the modules and has also made an in-depth use of the database of irreducible faithful representations of finite simple groups available in Magma and Wilson's webpage together with the Brauer character tables and the atlas of finite simple groups.

5. Postgraduate supervision (jointly with other professors) and Examination.

<i>Name of student</i>	<i>Program</i>	<i>Thesis title</i>	<i>Status</i>
Nelson Muhati	MSc	Modeling of the basic reproduction number of HIV and tuberculosis Co-infection in the presence of treatment	Graduated
Donkor Richard	MSc	Multi – regression modeling of academic performance, visual acuity and intelligence	Graduated
Lydia Rukaria	PhD	Codes designs and graphs obtained from the Projective Symplectic Group $S_8(2)$	Submitted for examinations
Cedric Ndarinyo Wanjala	PhD	Binary codes and combinatorial objects from the Alternating groups A_n , n a prime greater than 5	Thesis draft
Vincent Marani	PhD	2-modular representations of some sporadic groups as binary codes	Submitted for examinations
Cyprian Omukhwaya Sakwa	PhD	On joint essential Maximal Numerical ranges of Aluthge transform	Graduated
Yvonne W Karuiki	MSc	On some Ternary Linear Codes obtained from the Projective Special Linear group $L_3(4)$	Submitted for examinations
Janet Maina	MSc	Codes from 2-modular representations of unitary group $U_3(4)$	Submitted for examinations

C. Postgraduate examined theses: Five postgraduate theses: Three Ph.D. and two M.Sc.

John Matuya	PhD	On characteristics of U-ideals by sequences	MMUST
Aldrin Wanambisi	PhD	Using prime gaps in factorization of large biprimes	MMUST
Mulinge Makau Julius	M.Sc.	Finite difference solution of the Boussinesq equation	MMUST
Mulinge Makau Julius	M.Sc.-re-examination	Efficient and secure probabilistic data encryption schemes.	MMUST

Michael Onyango Ojiema	MSc	On the structures of the unit groups of power four radical zero commutative completely primary finite rings	MMUST
Collins Kimutai Meli	MSc	On characterization of polynomially bounded operators on Hilbert space	Kibabii University
Oliver Wanyama	MSc	Quantum thermodynamics of a strong interacting Bose-Fermi mixture in a three dimensional Anharmonic potential	Kibabii University
Zachary Kaunda Kayiita	MSc	On Compact bounded operators between Banach-Koordinat spaces and their vector sequence spaces	Kibabii University

6. List of publications:

1. Vincent Marani¹, Lucy **Chikamai**, Shem Aywa, *A Primitive Representation of Degree 276 Related to Mathieu Group M_{24}* , International Journal of Engineering and Mathematical Sciences, January – June 2019, Volume 15, Issue – 1, pp.01 – 10
 2. L. Rukarial¹, **L. Chikamai**, I. Kamuti: Binary Codes from the Projective Symplectic Group $S_8(2)$, International Journal of Engineering and Mathematical Sciences, July – Dec 2018, Volume 14, Issue – 1, pp.10 – 23, July – Dec. 2018, Volume 14, Issue – 1, pp.10 – 23. ISSN (Print) – 2319 - 4537, (Online) – 2319 - 4545.
 3. O. S. Cyprian, S. Aywa, **L. Chikamai**, *A note on the joint Essential Numerical range of the Aluthge Transform*, IJPAM; VOL 118, No. 3, (2018), 573-579
 4. O. S. Cyprian, S. Aywa, **L. Chikamai**, *Some properties of the joint Numerical range of the Aluthge Transform*, IJPAM; VOL 118, No. 2 (2018), 165-172
 5. R.O. Simwa, N. L. Muhati, **L. Chikamai** *On derivation of the probability of occurrence of an Epidemic with application to HIV/AIDS spread given Tuberculosis co-infection in the presence of treatment*, SJAMS, Vol. 5, No. 5, 2017, pp, 169-173 ISSN 2376-9491
 6. C.W. Ndarinyo, V. N. Marani, **L. W. Chikamai** and M. Andanje, *Suborbital Graphs and their Properties for ordered Triples in A_n ($n = 5, 6, 7$) Through Rank and Sub degree Determination*, IJEMS (2016), Volume 9, Issue1, pp. 18- 21,
 7. M. H. Omukuba, A. A.M. Wasike and **L. Chikamai**, *Stability Analysis of a Fishery Model with Nonlinear Variation in Market price. International journal of applied mathematical sciences*, (2016)
 8. **L. Chikamai**, J. Moori and B. G. Rodrigues, *Some 2-modular codes preserved by the simple group $L_3(4)$ as an automorphism group*. Utilitas Mathematica 95 (2014), 357-399.
 9. **L. Chikamai**, J. Moori and B. G. Rodrigues, *Self-orthogonal codes from some 2-(64, 28, 12) designs and their orbit matrices*. JCMCC 90 (2014), PP 285-298.
 10. **L. Chikamai**, J. Moori and B. G. Rodrigues, *Some irreducible 2-modular codes invariant under the Symplectic Group $S_6(2)$* . Glas. Mat, vol. 49(69), (2014), 235-261.
 11. **L. Chikamai**, J. Moori and B. G. Rodrigues, *2-modular representations of the alternating group A_8 as binary Codes*. Glas. Mat., Ser III 47(67), (2012), no. 2, 225-252.
 12. Ph.D. Thesis: *Linear Codes obtained from 2-modular representations of some Simple Finite Groups*. University of Kwa-Zulu Natal, South Africa.
 13. M.Sc.: *Duality in the FK-spaces*, Dissertation in partial fulfillment of Master's Degree. Kenyatta University, Kenya.
- a) **Submitted for publication**
1. **L. Chikamai**, A note on duality in the FK-spaces,
 2. Y. Karuiki, **L. Chikamai**, S. Aywa. On some ternary linear codes and designs obtained from the projective special linear group $L_3(4)$
 3. V. Marani, **L. Chikamai**, S. Aywa: Some optimal codes, designs and graphs of degree 276 related To Mathieu group M_{24}
 4. V. Marani, **L. Chikamai**, S. Aywa: Some optimal codes, designs and graphs of degree 759 related to Mathieu group M_{24}
 5. L. Rukarial¹, **L. Chikamai**, I. Kamuti: Designs, Codes and Graphs from the Primitive Permutation Representation of Degree 2295 of the Projective Symplectic Group $S_8(2)$
 6. **L. Chikamai**, J. Moori and B. G. Rodrigues, On some binary codes and designs from $\text{Aut}(L_3(4))$

7. Maina L. J, **L.Chikamai**, L. Njuguna: 2-modular representations of unitary group $U_3(4)$ as binary Codes

7. Conferences, Workshops, Training and Memberships:

(i) Workshops and conferences

<i>Conference Name</i>	<i>Place/ country</i>	<i>Dates</i>
1. CIMPA international school on Algebraic Representation Theory 2015	Cape Town, South Africa,	July 2015
2. Masai Mara science and development action international summit	Masai Mara University, Mara Game reserve,	April 2015
3. ISO certification training on writing procedures	Ndupawa hotel Eldoret, Kenya	2015
4. Staff Induction workshop-Enhancing Management culture, integration and internalization	Kibabii University	March 2014
5. University Multiplication workshop on curriculum development and review for public universities in Kenya	MCU, MMUST, Kenya	Jan 2014
6. STTI Board of governors induction workshop	Sosa Cottages, Kenya	June 2014
7. Corporate governance Training course	Kibabii University College, Kenya,	May 2014
8. Peer educators, HIV and Aids	Kibabii University College,	2014
9. Joint Congress of South Africa and America Mathematical Society	Port Elizabeth, South Africa	November 2011
10. Annual Kwa-Zulu Natal Mathematical Conference	Durban University of Technology, South Africa	March 2011
11. Diversity in Mathematics Conference	AIMS Cape town, South Africa	July 2010
12. Annual Kwa-Zulu Natal Mathematical Conference	University of Zululand Technology, South Africa	March 2011
13. Annual South African Mathematical Society (SAMS)	University of Johannesburg	November 2009
14. Annual South African Mathematical Society (SAMS)	University of Kwa-Zulu Natal, South Africa	November 2008

(i) In-house training

- a. Pre-CBA negotiation skills for Kibabii university
- b. Enterprise risk management training

(ii) Short courses and training

<i>Name of Course</i>	<i>Place</i>	<i>Dates</i>
1. CIMPA international school on Algebraic Representation Theory 2015	Cape Town, South Africa,	July 2015
2. Supplemental Instruction course	University of KwaZulu-Natal, South Africa,	2012
3. East Africa Summer School in Algebra and Combinatorics sponsored by ICTP,	Makerere University, Uganda	June 2006
4. Counseling workshop organized by Action Aid Kenya,	Golf Hotel, Kakamega, Kenya	1985.
5. Government organized farmers Course in both Dairy and Poultry farming at	Bukura FTC, Kenya	1992.

(iii) Membership

a. Professional

<i>Name</i>	<i>Position</i>	<i>Dates</i>
o IMIS (UK) Licentiate member, 2000.	Member	Current

- MACKNET Kenya Inter-university Network of Mathematics and Computer science Institutions. Women representative. 2004-2008
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- b. *Colleges and Schools boards*
 - Kimangeti Girls High BOM Chair 2015- to date
 - Kakoi Primary School BOM Chair 2015- to date
 - Shamberere technical training institute Member 2015- to 2018
 - Samitsi Secondary school. Member 2006-2008
 - Malava Bible Training College. Member 2005-2008

8. Workshops, Conferences, Seminars and Short courses

- June 2016 1ST international conference on transformative leadership for societal empowerment, Kibabii University, Kenya,
- July 2015 the 2015 International cimpa research school on algebraic representation theory, AIMS–Cape Town, South Africa
- April 2015 Masai Mara science and development action international summit, Masai Mara University, Kenya
- 2015 ISO certification training on writing procedures, Ndupawa hotel Eldoret, Kenya
- March 2014 Staff Induction workshop-Enhancing Management culture, integration and internalization Kibabii University
- June 2014 STTI Board of governors induction workshop, Sosa Cottages, Kenya
- Jan 2014 University Multiplication workshop on curriculum development and review for public universities in Kenya, MCU, MMUST, Kenya
- May 2014 Corporate governance, Kibabii University
- 2014 Peer educators, HIV and Aids, Kibabii University
- Nov 2011 Joint congress of South Africa and American Mathematical Society, Port Elizabeth, South Africa
- March 2011 Annual Kwa-Zulu Natal Mathematical Conference, Durban University of Technology, South Africa
- July 2011 Diversity in Mathematics Conference, AIMS, Cape Town, South Africa 0722328344
- March 2011 Annual Kwa-Zulu Natal Mathematical Conference University of Zululand
- Nov 2009 Annual South African Mathematical Society (SAMS), University of Johannesburg,
- Nov 2008 Annual South African Mathematical Society (SAMS), University of Kwa-Zulu Natal,
- June 2006 East Africa Summer School in Algebra and Combinatorics sponsored by ICTP Makerere University, Uganda
- 1985 Counseling workshop organized by Action Aid Kenya, Golf Hotel, Kenya
- June 1992 Farmers Course in both Dairy and Poultry farming at Bukura FTC, 1992. Bukura FTC, Kenya
- Nov 2008 Annual South African Mathematical Society (SAMS), University of Kwa-Zulu Natal,
- June 2006 East Africa Summer School in Algebra and Combinatorics sponsored by ICTP, Makerere University, Uganda
- 1985 Counseling workshop organized by Action Aid Kenya, Golf Hotel, Kenya
- June 1992 Farmers Course in both Dairy and Poultry farming at Bukura FTC, 1992. Bukura FTC, Kenya

9. Membership and Community Service

- Kenya Inter-university Network of Mathematics and Computer science Institutions, MACKNET - women representative. 2008-2009
- IMIS (UK) Licentiate member, 2000.
- Serving Board member Shamberere Technical Training College (2014-2018)
- Chair of Board - Kimangeti Girls Secondary school. (2016-present)
- Chair of Board - Kakoi Primary school. (2016-present)
- Board member- Samitsi Secondary school. (2006-2007)
- Board member - Malava Bible Training College. (2005-2008)
- Peer educator- HIV Kibabii University
- Founder member and church Elder- United saints Outreach ministry international (USOMI)

10. Grants and Awards

- AMMSI award for masters study- KShs 50,000
- UKZN graduate school scholarship for PhD studies- Tuition fees
- UKZN Mathematics Department award for PhD studies -Tuition fee
- Postgraduate scholarship from NRF- South Africa

11. Others

- Chaired and Organized first Kibabii International Conference – raised **KSh. 380,000**
- Sourced for a donation of 46 science books from ICTP –Italy

12. Referees

1. Prof Kamuti Ileri,
Dept. of Mathematics and Actuarial Science
Kenyatta University,
Box 30144, Nairobi, Kenya.
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2. Prof Shem Aywa
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3. Prof Solomon I Shibairo,
DVC (ASA),
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4. Prof Donald Siamba
Faculty of Science,
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